

# इंटरनेट

# मानक

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IS 11352 (1998): Flexible pouches for the packing of vanaspati upto 5 kg or 5 litres [PCD 21: Plastics Containers]



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भारतीय मानक  
5 किग्रा. या 5 लीटर वनस्पति की  
पैकिंग के लिए नम्य थैलियाँ — विशिष्टि  
( दूसरा पुनरीक्षण )  
*Indian Standard*

FLEXIBLE POUCHES FOR THE PACKING OF  
VANASPATHI UP TO 5 kg OR 5 LITRES —  
SPECIFICATION  
( *Second Revision* )

ICS 55.020; 67.200

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**BUREAU OF INDIAN STANDARDS**  
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NEW DELHI 110002

## FOREWORD

This Indian Standard (Second Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Plastics Containers Sectional Committee had been approved by the Petroleum, Coal and Related Products Division Council.

This standard was first published in 1985 covering flexible packs for both the edible oils and *vanaspati*. With the publication of a separate standard covering flexible packaging materials for edible oils (*see* IS 12724 : 1989 'Flexible packaging materials for packaging of refined edible oils'), this standard was revised in 1994 to cover packaging of *vanaspati* only. In this revision flexible packs up to 5 kg were covered.

With the promulgation of the *Standards of Weights and Measures (Packaged Commodities) Third Amendment Rules*, 1994, that edible oils, *Ghee*, *vanaspati* and butter oils may be packed by weight or volume basis in sizes 50 g/50 ml, 100 g/100 ml, 200 g/200 ml, 500 g/500 ml, 1 kg/1 litre, 2 kg/2 litres, 5 kg/5 litres thereafter in multiples of 5 kg/5 litres, it becomes necessary to make suitable provisions in the standard. The rule also states that in case packing has been done on mass basis, declaration of volume within brackets, and if it is done on volume basis, declaration of mass within brackets, is to be done. These changes were included in this standard through an amendment issued in January 1995.

During the implementation of first revision of this standard difficulties were experienced by the *vanaspati* pouch fillers as certain requirements incorporated in the revision should be controlled and tested by the films suppliers. The Committee, therefore, decided to modify the standard. In this second revision the following modifications have been effected:

- Amendment No. 1, January 1995 has been incorporated with modifications.
- Title and Scope has been changed to make it more clear.
- Requirements for 50 g or 50 ml pouches have been included.

The flexible material for forming the bag will have to be selected with care as per IS 10171:1987 'Guide on suitability of plastics for food packaging'. It should have appropriate barrier properties to ensure adequate storage life for *vanaspati* without significant change from the initial quality. Further, system must also have physical strength to withstand transportation and transit hazards. There must be no migration of constituents from the flexible packaging material into the product.

Hence, there can be variation in the structure and type of flexible materials available for manufacturing the *vanaspati* bag. In general, the materials must ensure that the *vanaspati* packed remains within the accepted quality norms. Also, the packaging material itself must not deteriorate with the passage of time and cause failure and leakage. Performance characteristics are vital in enabling a proper choice of material, but they are time consuming and expensive. Hence, these requirements need to be correlated to certain physical properties which could be determined more regularly, easily and within a shorter time span. The tests are, therefore, classified as type tests (product approval) and acceptance tests (product identification). The pouches shall be subjected to type approval tests and then shall be tested for physical characteristics like construction, thickness, etc, which would be recorded and will be the controlling specification as long as there is no change in the packaging material.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

**AMENDMENT NO. 1 JULY 2003**  
**TO**  
**IS 11352 : 1998 FLEXIBLE POUCHES FOR THE**  
**PACKING OF VANASPATI UP TO 5 kg OR**  
**5 LITRES — SPECIFICATION**

*( Second Revision )*

*( Foreword, para 6 )* — Insert the following new paras after para 6:

'A scheme of labelling environment friendly products with the ECO logo has been introduced at the instance of the Ministry of Environment and Forests (MEF), Government of India. The ECO-Mark is being administered by the Bureau of Indian Standards (BIS) under the *BIS Act*, 1986 as per the Resolutions No. 71 dated 21 February 1991 and No. 425 dated 28 October 1992 published in the Gazette of the Government of India. For a product to be eligible for marking with the ECO logo, it shall also carry the ISI Mark of the BIS besides meeting additional environment friendly requirements. For this purpose the Standard Mark would be a single mark being a combination of the ISI Mark and the ECO logo.

This amendment is based on the gazette Notification No. 170 dated 18 May 1996 for plastic products as environment friendly products published in the Gazette of the Government of India. This amendment is, therefore, being issued to this standard to include environment friendly requirements for flexible pouches for the packing of vanaspati upto 5 kg or 5 litres.'

*( Page 2, clause 5.9 )* — Insert the following new clauses after 5.9 and renumber the subsequent clauses:

**'6 ADDITIONAL REQUIREMENTS FOR ECO-MARK**

**6.1 General Requirements**

**6.1.1** The product shall conform to the requirements for quality, safety and performance prescribed.

**6.1.2** The manufacturer shall produce to BIS the consent clearance as per the provisions of *Water (Prevention & Control of Pollution) Act*, 1974 and *Air (Prevention & Control of Pollution) Act*, 1981 along with the authorization, if required under *Environment (Protection) Act*, 1986 and the Rules made thereunder while applying for the ECO-Mark. The manufacturer shall produce documentary

**IS 1562 : 1998**

evidence with respect to the compliance of regulation under *Prevention of Food Adulteration Act, 1954* and *Drugs and Cosmetic Act, 1940* and Rules made thereunder, wherever necessary.

**6.1.3** The product must display a list of critical ingredients in descending order of quantity present expressed as percent of the total. The list of such ingredients shall be identified by Bureau of Indian Standards.

**6.1.4** The product packaging shall display in brief the criteria based on which the product has been labelled as 'Environment Friendly'.

**6.1.5** The material used for product packaging shall be recyclable or biodegradable.

**6.1.6** It shall also suitably mention that ECO-Mark label is applicable only to the packaging material/package, if content is not separately covered under ECO-Mark. It may be stated that ECO-Mark is applicable to the product or packaging material or both.

## **6.2 Product Specific Requirements**

For the manufacture of this product one or more of the virgin material covered in following Indian Standard shall be used:

<i>IS No.</i>	<i>Title</i>
10142 : 1999	Polystyrene (crystal and high impact) for its safe use in contact with foodstuffs, pharmaceuticals and drinking water
10146 : 1982	Polyethylene for its safe use in contact with foodstuffs, pharmaceuticals and drinking water
10151 : 1982	Polyvinylchloride (PVC) and its copolymers for its safe use in contact with foodstuffs, pharmaceuticals and drinking water
10910 : 1984	Polypropylene and its copolymers for its safe use in contact with foodstuffs, pharmaceuticals and drinking water
11434 : 1985	Ionomers resins for its safe use in contact with foodstuffs, pharmaceuticals and drinking water
11704 : 1986	Ethylene/acrylic acid (EAA) copolymers for its safe use in contact with foodstuffs, pharmaceuticals and drinking water

( PCD 21 )



## *Indian Standard*

# FLEXIBLE POUCHES FOR THE PACKING OF VANASPATI UP TO 5 kg OR 5 LITRES — SPECIFICATION

( *Second Revision* )

### 1 SCOPE

This standard covers the requirements for flexible pouches made of thermoplastics film or their combinations with other flexible materials for packing *vanaspati* in net quantities of 50 g, 100 g, 200 g, 500 g, 1 kg, 2 kg and 5 kg if packed on weight basis or 50 ml, 100 ml, 200 ml, 500 ml, 1 litre, 2 litres, and 5 litres if packed on volume basis.

### 2 NORMATIVE REFERENCES

The following Indian Standards contain provisions which through reference in this text constitute provisions of this standard. At the time of publication the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standard indicated below:

<i>IS No.</i>	<i>Title</i>
2508 : 1984	Low density polyethylene films ( <i>second revision</i> )
2771 (Part 1) : 1990	Fibre board boxes: Part 1 Corrugated fibre board boxes ( <i>second revision</i> )
2828 : 1964	Glossary of terms used in the plastics industry
4261 : 1967	Glossary of terms relating to paper and pulp based packaging materials
7019 : 1998	Glossary of terms in plastics and flexible packaging, excluding paper ( <i>second revision</i> )
7028 (Part 2) : 1988	Performance tests for complete filled transport packages: Part 2 Vibration test at fixed low frequency ( <i>first revision</i> )
8639 : 1977	Code for evaluation of the effect of packaging and storage on the sensory qualities of foods and beverages
9845 : 1998	Determination of overall migration of constituents of plastics materials

### *IS No.*

### *Title*

	and articles intended to come into contact with foodstuffs — Method of analysis ( <i>second revision</i> )
10633 : 1986	<i>Vanaspati</i> ( <i>first revision</i> )
14534 : 1998	Guidelines for recycling of plastics
14636 : 1998	Flexible packaging materials for packaging of edible oils, <i>ghee</i> and <i>vanaspati</i>

### 3 TERMINOLOGY

**3.1** For the purpose of this standard, definitions given in IS 2828, IS 4261 and IS 7019 and the following shall apply.

#### 3.2 Type Test

Tests carried out to prove conformity with the specification. These are intended for product approval of a given type of pouches/bags.

#### 3.3 Acceptance Test

Tests carried out on sample taken from a lot passing type tests for the purpose of acceptance of the lot on a batch to batch basis.

#### 3.4 Lot

In single consignment all the pouches/bags of the same type, same form and belonging to the same batch of manufacture grouped together shall constitute a lot.

### 4 TESTS

#### 4.1 Classification of Tests

##### 4.1.1 Type Tests

The following shall constitute type (product approval) tests (*see* Annex A):

- a) Thickness (*see* 5.2),
- b) Vibration leakage test (*see* 5.3),
- c) Storage test (*see* 5.4),
- d) Overall migration (*see* 5.5),
- e) Stack load test (*see* 5.6), and
- f) Drop test (*see* 5.7).

#### 4.1.2 Acceptance Tests

The following shall constitute the acceptance (product identification) tests:

- a) Thickness (*see* 5.2),
- b) Overall migration (*see* 5.5),
- c) Stack load test (*see* 5.6),
- d) Drop test (*see* 5.7),
- e) Ink adhesion test (for printed products) (*see* 5.8), and
- f) Product resistance of printed pouches (*see* 5.9).

4.1.2.1 The batch shall be accepted if the pouches are found to comply with requirements of acceptance tests given in 4.1.2.

### 5 REQUIREMENTS

5.1 The materials comprising the flexible packaging materials shall conform to IS 14636.

#### 5.2 Thickness

5.2.1 The overall thickness of the pouch/bag material and the thickness of the individual layers of each ply of the flexible packaging material shall be declared by the producer.

5.2.1.1 The overall thickness and the thickness of individual layer shall be within  $\pm 10$  percent of the declared value. The overall thickness shall be checked according to method given in A-2 of IS 2508.

#### 5.3 Vibration Leakage Test

The flexible packaging material shall be formed into pouches, filled and sealed as in the actual filling and sealing process of pouches. The filled pouches/bags shall be subjected to vibration test as given in Annex B.

#### 5.4 Storage Test

5.4.1 Pouches/bags made from flexible packaging material meant for packaging *vanaspati*, filled with the *vanaspati*, shall be tested for storage properties.

5.4.2 The storage test shall be carried out at  $38 \pm 1^\circ\text{C}$  and  $90 \pm 2$  percent relative humidity (accelerated conditions) and  $27 \pm 1^\circ\text{C}$  and  $65 \pm 2$  percent RH (standard conditions). The free fatty acid (as percentage of oleic acid), moisture content when determined as per the method given in IS 10633 and rancidity of the contents when determined as per the method given in IS 8639 shall be noted initially and at the end as per the schedule given in Table 1 under accelerated and standard conditions.

**Table 1 Test Period for Storage Test**  
(Clause 5.4.2)

Sl No	<sup>1)</sup> Shelf Life (Months)	Accelerated Conditions (Days)	Standard Conditions (Days)
(1)	(2)	(3)	(4)
i)	3	30	90
ii)	6	60	180
iii)	9	90	270
iv)	12	120	365

<sup>1)</sup>The period at 6.2(d) to the date 'best before.....' at 6.2(e).

During the test period the pouches shall also be observed for any delamination, seam failure, print deformation and any oil seepage into the laminated structure. The product shall be assessed for the moisture content, free fatty acid and rancidity. The pouches shall be accepted when (i) the values of the moisture content and free fatty acid shall not exceed the stipulated limits in IS 10633, (ii) *vanaspati* shall not show rancidity, and (iii) there is no delamination and no leakage during and at the end of declared shelf life.

#### 5.5 Overall Migration

Pouch or representative sections shall be subjected to overall migration test with *n*-heptane at  $27 \pm 2^\circ\text{C}$  for 30 minutes according to the method given in IS 9845. The maximum extraction value of the material shall not exceed  $10 \text{ mg/dm}^2$  and 60 ppm.

#### 5.6 Stack Load Test

The unit packs when subjected to a uniformly distributed stack load for 24 h shall not show any leakage at the seam or bursting of the film. The details of stack loads and the test method are given in Annex C.

#### 5.7 Drop Test

The filled pouches shall be subjected to a vertical drop test at ambient condition, as detailed in Annex D and shall meet the acceptance criteria therein.

#### 5.8 Ink Adhesion of Printed Pouch/Bag

The printed matter on the pouch/bag when tested in accordance with the method given in Annex E, shall be still legible.

#### 5.9 Product Resistance of Printed Pouches/Bags

The printed matter on the pouch/bag when tested in accordance with the method given in Annex F, shall be still legible.

### 6 PACKING AND MARKING

6.1 The filled pouches/bags shall be supplied in corrugated boxes.

**6.1.1** Each box shall be marked with the following information:

- a) Indication of the source of manufacture,
- b) Number of pouches/bags,
- c) Mass of the box, and
- d) Batch number and date of manufacture.

## **6.2 Flexible Pouches**

Pouches/bags shall be printed with the information as required by the purchaser and the statutory requirements which *inter-alia* include the following:

- a) Indication of the source of manufacture and trade-mark, if any;
- b) Net quantity packed in litres or ml and within brackets the corresponding quantity in kg or g or kg or g and within brackets the corresponding quantity in litres or ml;
- c) Batch/Code number;

- d) Date of manufacture;
- e) Best before..... in line with 5.4.2; and
- f) Recycling symbol in line with IS 14534.

## **6.3 BIS Certification Marking**

The bags/pouches may also be marked with the Standard Mark. The Standard Mark on the bags/pouches shall be such as not to construe as the marking for the contents of the packs.

**6.3.1** The use of the Standard Mark is governed by the provisions of *Bureau of Indian Standards Act, 1986* and the Rules and Regulations made thereunder. The details of conditions under which the licence for the use of Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

# **ANNEX A**

(Clause 4.1.1)

## **PROCEDURE FOR TYPE/PRODUCT APPROVAL**

**A-1** The pouch/bag shall be approved if it conforms with the requirements of tests given in 4.1.1.

**A-2** Accordingly, pouch/bag shall be subjected to vibration test followed by storage tests. Besides, stack load test and drop test will also be carried out to prove pack integrity (leakers).

**A-3** The pouch successfully passing these type tests shall be tested for physical characteristics like construction, thickness which would be recorded and these shall be the controlling specification, as long as there is no change in the initial quality of *vanaspati* and also the flexible packaging materials, as fixed.

**A-4** In the event of any change in the initial quality of *vanaspati* or of the flexible packaging materials reapproval will be required and the type tests shall be carried out afresh as in A-1 to A-3 and the controlling specifications for acceptance test redetermined and fixed.

**A-5** When the proposed changes are such that it may not be expected to significantly affect the performance (satisfactorily passing the type tests), the certifying/testing authority may at its discretion recommend

waiving complete re-approval or may require only partial re-approval in order to determine the significance and acceptability of the proposed changes and to redetermine and to fix the controlling specification for acceptance tests.

**A-6** If any supplier of pouches/bags wishes to obtain product/type approval for material meant for packing a type and quality of *vanaspati* having earlier obtained approvals for other types of materials for packing the same type and quality of *vanaspati*, he shall file a certificate stating that the product has successfully passed the type tests as stated in A-1. The certifying/testing authority may recommend waiving off these type tests or may require only partial approval tests for the purpose of determining the controlling specifications for acceptance tests.

**A-7** In the event of material found to be failing one or more type tests, the testing authority may call for fresh samples not exceeding twice the number of original samples and subject them to all the test(s) or the tests in which the failure occurred. The test(s) may be considered to have been satisfied and product approval given only if the repeat test(s) show no failure.

**ANNEX B**

(Clause 5.3)

**VIBRATION LEAKAGE TEST****B-1 VIBRATION TABLE**

This shall be equipment conforming to IS 7028 (Part 2).

**B-2 MODE OF PACKAGING**

Pouches/bags shall be packed flat in a corrugated fibre board box conforming to IS 2771 (Part 1).

**B-3 TEST CONDITIONS**

Tests shall be carried out at  $43 \pm 1^\circ\text{C}$  at a constant temperature room with packs filled with *vanaspati*.

Alternately, test may be carried out at ambient temperature with the packs filled with refined edible oils. In the case of dispute, the ambient temperature shall be  $27 \pm 2^\circ\text{C}$ .

**B-4 PROCEDURE**

Four outer boxes, containing the product, shall be kept on the vibration table and vibrated at a peak

acceleration of slightly above 1 g for 30 minutes. After the test, the pouches/bags are examined for apparent leaks and removed. The remaining are wiped clean and placed flat on blotting paper on the vibration table at 2 Hz for 10 minutes and the pouches/bags are examined for apparent leaks and counted and added to the leakers.

**B-5 CRITERIA FOR ACCEPTANCE AND RETESTING**

The lot shall be considered passing in the test, if not more than one pouch/bag shows leakages in the test. In the event of leakage of more than one pouch/bag, a retest involving the same quantities as per B-4 shall be taken and tested for vibration test. The lot shall be considered passing in the retest if not more than one pouch/bag shows leakage, otherwise the lot is rejected.

**ANNEX C**

(Clause 5.6)

**STACK LOAD TEST****C-1 PROCEDURE**

Four unit packs shall be selected from a lot of 100 packs filled in the usual way. The packs shall be subjected to a uniformly distributed load as given below for 24 h. The pouches/bags shall lie in a flat position.

The testing shall be at  $43 \pm 1^\circ\text{C}$  at constant temperature room with the pouches/bags filled with *vanaspati*. Alternately, the test may be carried out at ambient temperature with the pouches/bags filled with refined edible oils. In the case of dispute the ambient temperature shall be  $27 \pm 2^\circ\text{C}$ .

The application of load shall be through a flat wooden plank which shall be placed on the unit pack in such a way that the load distribution is equal on each pack.

Pack Capacity	Stack Load (N) for	
	One Pouch	Four Pouches
50 g or 50 ml	15	60
100 g or 100 ml	20	80
200 g or 200 ml	30	120
500 g or 500 ml	40	160
1 kg or 1 litre	50	200
2 kg or 2 litres	100	400
5 kg or 5 litres	—	400

**C-2 RESULT**

On completion of the test, the packs shall be examined for any leakage at the seam or bursting. No leakage or bursting is permitted.

**ANNEX D***(Clause 5.7)***DROP TEST****D-1 SAMPLING**

Ten filled unit packages from a lot of one hour production or 1 000 packs filled and sealed in the usual way. The test samples are allowed to cool to  $43 \pm 1^\circ\text{C}$ .

**D-2 METHOD**

Five units shall be tested first. Each shall be subjected to a flat drop at  $43 \pm 1^\circ\text{C}$  on a flat hard surface. The drop height shall be as follows:

<i>Pack Capacity</i>	<i>Drop Height</i>
Below 1 kg or 1 litre	1.2 m
1 kg or 1 litre, 2 kg or 2 litres and 5 kg or 5 litres	0.75 m

**D-3 CRITERIA FOR ACCEPTANCE AND RETESTING**

Each flexible pouch/bag shall be examined for any leakage of the contents and delamination after the test. If none of the five pouches/bags selected for test fails in the drop test, the lot shall be considered as passing. If just one fails, the other set of five shall be tested in the same manner as above. If none fails, the lot shall be accepted otherwise the lot shall be rejected.

**ANNEX E***(Clause 5.8)***TEST FOR INK ADHESION OF PRINTED POUCHES/BAGS**

**E-1** Apply two strips of 25 mm wide transparent pressure sensitive taps or cello-tape to the printed area of the pouch, one piece down the length of the pouch and the other along the width.

**E-2** Press the tape firmly on to the pouch and leave for 15 seconds.

**E-3** Remove the tape by pulling slowly at about 10 mm/s from one end at about  $90^\circ$  to the pouch surface.

**E-4** There shall be no significant removal of the print from the surface of the pouch and the printed material shall be still legible.

**ANNEX F***(Clause 5.9)***TEST FOR PRODUCT RESISTANCE OF PRINTED POUCHES/BAGS**

**F-1** Leave the pouch to stand for at least 24 h after printing.

**F-2** Partially immerse the pouch, or representative sections out from the printed area, in the melted *vanaspati* intended to be packed into the pouch at  $43 \pm 1^\circ\text{C}$  for 1 h.

Remove the pouch or representative sections from the product and wash with cold water.

**F-3** Rub each pouch or representative section firmly with paper tissue 10 times.

**F-4** There shall be no significant removal of the print from the surface of the pouch and the printed material shall be still legible.

## Bureau of Indian Standards

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### Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

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